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Validity of Bender Gestalt Test Emotional Indicators for Functional Fifth-Grade Children

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VALIDITY OF BENDER GESTALT TEST EMOTIONAL INDICATORS FOR FUNCTIONAL FIFTH-GRADE CHILDREN

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Master of Arts

by

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TABLE OF CONTENTS

LIST OF TABLES

VALIDITY OF BENDER GESTALT TEST EMOTIONAL INDICATORS FOR FUNCTIONAL FIFTH-GRADE CHILDREN

Donald J. Britt July 1978 43 pages

Directed by: David A. Shiek, C. Clinton Layne, and Norman D. Ehresman

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Both the Bender Gestalt Test and the Children's Personality Questionnaire were administered to 75 fifth-grade students. Analyses were made to determine the possible relationships between the Koppitz Emotional Indicators on the Bender Gestalt Test and the various personality factors assessed by the Children's Personality Questionnaire. The results of these analyses found few significant relationships. Those that were significant were frequently conflicting and the opposite of the results which would have been predicted by Koppitz. These results provide a basis for questioning the validity of the Koppitz Emotional Indicators and their adequacy for use as a technique for personality assessment with children.

CHAPTER 1

Introduction

It has been forty years since Loretta Bender's (1938) monograph entitled A Visual Motor Gestalt Test and Its Clinical Use was published. Since that time the Bender Gestalt Test has gained increased acceptance by clinical psychologists as a valuable tool. In 1946 the Bender Gestalt Test was the 54th most frequently used test by psychologists. By 1958 it had become the fourth most frequently used test as determined by a survey conducted by Sundberg (1961). More recently Lubin et al. (1971) found that it was the third most popular test administered by clinicians in practice, exceeded only by the Wechsler Adult Intelligence Scale (WAIS) and the Rorschach. In that the WAIS is inappropriate for use with children and the Rorschach is not frequently used with young children, the Bender Test could easily be the most frequently used instrument on younger clients.

Much of the current popularity of the Bender Gestalt Test comes from its ease of administration and scoring. The test itself consists of nine drawings or figures. These figures are presented to the subject one at a time by the examiner, and the subject is asked to reproduce

these drawings on a separate blank piece of paper. This requires the visual interpretation or perception of the stimulus by the subject and the motor functions required to reproduce the figures. The inability to accurately reproduce the drawings indicates a problem in visual motor perception or an inability to translate the visual input and incorporate it into appropriate motor output. Faulty reproduction can be the result of improper visual input, poorly developed motor skills, inability to perform the required mental functioning, or some combination of these three.

Several attempts were made at developing objective scoring techniques through the 1940's and 1950's. However, it was not until the early 1960's that a well-accepted, objective scoring method was available for general use with children. Elizabeth M. Koppitz, in her book, The Bender Gestalt Test for Young Children, first printed in 1963, outlined the system for scoring the Bender Gestalt Test when used with children. This work outlines a specific system for scoring 30 frequently seen errors for gauging perceptual motor development and 12 indicators of emotional disturbance or emotional indicators (EI's) in young children.

The current 12 EI's contained in the Koppitz scoring system are based on Koppitz' clinical experience and the

experimental findings of other researchers (Byrd, 1956; Clawson, 1959; Hutt & Briskin, 1960; Kitay, 1950; Murry & Roberts, 1956; Pascal & Suttell, 1951; Tucker & Spielberg, 1958). Certain of these EI's occur frequently and others occur so infrequently that any statistical treatment of data containing them has been impossible. The 12 EI's in current usage in the Koppitz system are:

I. Confused Order
II. Wavy Line (Figures 1 and 2)
III. Dashes for Circles (Figure 1)
IV. Progressive Increase in Size (Figures 1, 2, and 3)
V. Large Size of Drawings
VI. Small Size of Drawings
VII. Fine Line
VIII. Overwork, Reinforced Lines
IX. Second Attempt
X. Expansion
XI. Box Around Design
XII. Spontaneous Elaboration or Additions to Design

The bulk of the experimental work done with the Bender Test and its ability to discriminate between groups of children has been done with children who had fairly significant behavioral disturbances. Among these might be comparisons of the Bender Test records of children referred to a clinic or psychologist for behavior problems

with those of a control group with no history of emotional disturbance. The question of whether Bender Test records could discriminate between children with less severe emotional disturbance has remained unanswered. Can Bender Gestalt records be used to identify children who are able to exist and function in their families, schools, and social environments and yet have more subtle emotional pathology? If it could be shown that the Bender Test could identify certain types of subtle emotional dysfunction, a new dimension could be added to this already powerful tool of the clinical psychologist.

It is the purpose of this study to compare the results of Bender Gestalt Test administrations with administrations of a standardized, objectively scored children's personality test. These Bender Test records scored with the Koppitz system will be analyzed for specific EI's, patterns of EI's, and the total number of EI's and their relationships with the various personality dimensions specified by an objective and well-standardized personality test.

CHAPTER 2

Literature Review

Since their appearance in 1954, the Koppitz Emotional Indicators have been demonstrated to have the ability to discriminate between various groups of children. Aggressive, impulsive, hostile, and acting out behavior are more common among children whose Bender Gestalt protocols have EI's. Certain EI's have also been able to discriminate between psychiatric and non-psychiatric children in a control group. Ackerman (1971) found that children whose Bender Gestalt Test protocols manifested EI I, Confused Order, were more frequently labeled as learning disabled than those whose protocols were not judged as confused.

Emotional Indicators I, Confused Order; IV, Increasing Size of Figures 1, 2, and 3; V, Large Size; and X, Expansion, were determined by Naches (1967) to be demonstrated more frequently by children described as acting out. Brown (1965) concurs that Expansion is associated with acting out. In addition, the Brown (1965) study also found that EI VIII, Careless Overwork or Heavily Reinforced Lines, was associated with overt hostility and that EI III, Dashes Substituted for Circles, in Figure 2, was more frequently made by children who were impulsive.

Aggressive children, according to Handler and McIntosh (1971), more frequently substitute dashes for circles in Figure 2, EI III. Emotional Indicator VIII, Careless Overwork or Heavily Reinforced Lines, and second attempts at drawings, EI IX, are also common to aggressive children. Second Attempts, EI IX, were also found more frequently by Mogin (1966) on protocols of children who have behavior difficulties.

In addition to the original ten EI's, Koppitz (1975) has added two additional indicators of emotionality. These are Box Around Design, EI XI; and Spontaneous Elaboration, EI XII. No controlled research is available at present to substantiate these indicators. They have been found by Koppitz to have clinical implications even though they occur very rarely. These indicators were developed based on Koppitz' clinical practice and experience.

McConnell (1967) has pointed out that in his study of 120 children, EI's appear to be independent of the developmental and brain injury indicators outlined in Koppitz' (1964) scoring system. Small Size, EI VI, and Fine Line, EI VII, are related to the characteristic shyness and withdrawal of psychotics. Large Size, EI V, and Reinforced Lines, EI VIII, are associated with the

impulsive, aggressive types of behavior associated with personality disorders. It was McConnell's point that the Emotional Indicators frequently are associated with behaviors which occur in different diagnostic categories and, therefore, would not commonly be found in the same individual. He found that a composite score of emotional indicators was not linked to the severity of the emotional disturbance in an individual. These findings are somewhat at odds with Koppitz' (1963, p. 130) findings which determined that with three or more EI's on a protocol it could be said that a child is likely to have serious emotional problems or require further evaluation. McConnell suggested that further research was needed to determine the correlations between specific personality variables and the Emotional Indicators.

The interrater reliability of Bender Gestalt Test administrations were compared by Foster et al. (1976) to determine if special education teachers would score Bender Gestalt protocols reliably after an inservice workshop. The study found that the interrater reliability for two experienced clinicians scoring 63 protocols was .92. After selecting six protocols at random, the ten teachers included in the study scored the protocols in accordance with the Koppitz system. With only a three-hour inservice workshop, the interrater correlation between the teachers

and the first psychologist was .91 and .89 between the teachers and the second psychologist.

This review of the literature would indicate that the Koppitz system of scoring the Bender Gestalt Test is valid in that it is able to discriminate between emotionally disturbed children and normal children. It would also indicate that it is reliable in that both trained clinicians and school teachers with limited training are able to score protocols within limits of accepted reliability. Further research is needed, however, to link specific emotional indicators with specific personality variables.

CHAPTER 3

Method

Subjects

The subjects for the study were 75 fifth-grade students who attended various elementary schools in Bowling Green, a South Central Kentucky community of approximately 40,000. These students attended schools operated by the Bowling Green Independent School District or Jones-Jaggers Laboratory School, operated by Western Kentucky University. All the subjects received administrations of the Bender Gestalt Test and the Children's Personality Questionnaire (CPQ).

Instrumentation

The CPQ was administered to all the fifth-grade students in the selected elementary schools as a routine portion of the testing concerned with a larger research project. The CPQ is a well-standardized, objectively scored measure of personality and is primarily intended for use with children ages 8 to 12 years. The results of the test give Standard Ten, or "Sten," scores with a mean of 5.5 and each full point equal to one-half standard deviation. Sten scores are yielded on 14 bipolar dimensions of personality with each of the 14 scales designated

by an alphabetical or alphanumeric symbol. The 14 scales and the personality dimensions which they measure are:

A Stiff, Aloof vs. Warm, Sociable

B Dull vs. Bright

C Emotional, Immature, Unstable vs. Mature, Calm

D Stodgy vs. Unrestrained

E Mild vs. Aggressive

F Sober, Serious vs. Enthusiastic, Happy-go-Lucky

G Casual, Undependable vs. Conscientious, Persistent

H Shy, Sensitive vs. Adventurous, "Thick Skinned"

I Tough, Realistic vs. Esthetically Sensitive

J Liking Group Action vs. Fastidiously Individualistic

N Simple, Awkward vs. Sophisticated, Polished

O Confident vs. Insecure

Q_3 Poor Self Sentiment Formation vs. High Strength of Self Sentiment

Q_4 Relaxed Composure vs. Tense, Excitable

In addition to the basic 14 scales, two additional scales have been identified. These are Anxiety vs. Adjustment and Extroversion vs. Introversion. The "Sten" scores obtained on the individual scales are converted to "Stave" scores with a mean of 3, a standard deviation of 1, and a range of scores from 1 to 5. "Stave" scores are used to

determine the scores on these two scales using a formulation outlined in the CPQ manual, which combines various scales to give a single score on these bipolar dimensions. Standardized scores are not available; however, according to Porter and Cattell (1963), a score of 30 is indicative of an average level of anxiety and a score of 40 indicative of a high level of anxiety. Scores range from 10 to 50 on the Anxiety vs. Adjustment scale. On the Introversion vs. Extroversion scale, an average score would be 9 with a range from 3 to 15. A high score would indicate a high level of extroversion.

The Bender Gestalt Tests were administered by graduate students in the Psychological Clinic at Western Kentucky University. These administrations were made to children experiencing academic difficulties or emotional problems, having been referred to the clinic by the Bowling Green Independent School District. Administrations to students from Jones-Jaggers Laboratory School were made as a part of an ongoing, longitudinal research project, which includes all the students in the school. These students were not referred to the clinic for any academic or emotional difficulty.

Procedure

The CPQ was administered in groups, one classroom at a time. All administrations of the Bender Gestalt Test were individual, with the administration of both instruments

closely supervised by licensed psychologists who are members of the faculty of Western Kentucky University.

The CPQ protocols were scored using the objective format specified by the test manual. The Bender Gestalt Test protocols were scored by a graduate clinician under the supervision of a licensed psychologist. Strict adherence to the Koppitz system was maintained to determine the specific EI's present for each child.

Scoring the Bender Gestalt protocols yielded the total number of EI's or scores present for each subject and the number of subjects who scored or did not score on the various EI's. Comparisons were then made of the Bender Gestalt Test results with the results obtained on the 14 primary personality factors and the two secondary personality factors of the CPQ. Students were divided into five groups, those obtaining 0, 1, 2, 3, or 4 scores for comparison based on total EI score. Additionally, students were divided into two groups, those who scored and those who did not score on each of the EI's for a comparison of the CPQ factors by individual EI.

The scores for the Bender Gestalt Test EI's yield rank ordered data 0 through 4 for total EI score and score or no score on the individual EI's. Based on the nature of the Bender Gestalt Test results and an N

of 75, non-parametric comparison with the CPQ results was indicated. The use of a non-parametric statistical analysis, in cases where the data does not fall into a normal distribution and the total N is fairly small, has been recommended by Hayslett (1968). Kruskal and Wallis (1952) have developed a method for analysis of non-parametric data based on ranks. The Kruskal-Wallis one-way analysis of variance by ranks was selected to compare the results of the Bender Gestalt Test and CPQ administrations. This statistical procedure assumes that the various groups, 5 total EI score groups and 2 individual EI score groups, would be drawn from identical populations. If the median CPQ factor scores for the various groups are significantly different, then the groups would be considered to vary on some dimension of personality as defined by the CPQ. A significance level of $<.05$ was used for all statistics.

CHAPTER 4

Results

To determine the degree to which the Koppitz Emotional Indicators can be of value in predicting various elements of personality, comparisons of those who obtained EI scores with those who did not score were made. These comparisons were made based on the differences in the medians for the various groups. Table I offers a distribution of S's on whose protocols the EI's were present or scored with S's on whose protocols the EI's were absent or not scored. It should be noted that, due to the limited frequency of EI's III, IV, VII, XI, and XII, no statistical analysis of the data was performed on these specific indicators.

Tables 2 through 8 contain the results of the comparisons of median CPQ personality factor scores to assess their relationships with the Koppitz Emotional Indicators. A total of 112 statistical comparisons were made with scores on 4 of the EI's being associated with some aspect of personality, as outlined by the CPQ. Scores on EI II, Wavy Line, and EI V, Large Size, were both related with the second order factor of Introversion vs. Extroversion. Those who scored on EI II had median scores somewhat higher than those who did not score on

TABLE 1

Frequency of Occurrence of Koppitz EI's

	Emotional Indicator	Absent	Present
I.	Confused Order	47	28
II.	Wavy Line	44	31
III.	Dash for Circle	73	2
IV.	Increasing Size	74	1
V.	Large Size	67	8
VI.	Small Size	52	23
VII.	Fine Line	75	0
VIII.	Overwork	67	8
IX.	Second Attempt	64	11
X.	Expansion	71	4
XI.	Box Around Design	75	0
XII.	Spontaneous Elaboration	75	0

TABLE 2

Comparison of S's Who Did Not Score

With S's Who Scored on Emotional Indicator I

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	No Score Group	Score Group		
A	4.958	5.045	0.070	0.792
B	4.455	4.833	0.174	0.677
C	5.159	5.192	0.129	0.719
D	5.462	5.500	0.664	0.415
E	5.219	4.833	0.635	0.426
F	5.208	5.136	0.009	0.924
G	5.350	5.125	0.263	0.608
H	5.813	5.214	0.883	0.347
I	5.368	4.962	2.936	0.087
J	5.114	5.167	0.017	0.895
N	4.925	5.625	1.908	0.167
O	5.688	5.389	0.328	0.567
Q_3	5.091	4.800	0.879	0.349
Q_4	6.200	6.214	0.450	0.502
Anxiety	30.800	31.500	0.634	0.426
Extroversion	8.950	9.100	0.016	0.898

TABLE 3

Comparison of S's Who Did Not Score

With S's Who Scored on Emotional Indicator II

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	No Score Group	Score Group		
A	4.682	5.292	3.216	0.071*
B	4.500	4.857	2.159	0.142
C	5.045	5.385	2.729	0.099*
D	5.300	5.708	0.695	0.405
E	5.143	5.000	0.155	0.694
F	5.045	5.292	0.979	0.322
G	5.375	5.150	0.065	0.799
H	5.167	6.000	3.757	0.053*
I	5.184	5.231	0.169	0.681
J	5.119	5.150	0.228	0.633
N	5.125	4.938	0.406	0.524
O	5.833	5.286	2.271	0.132
Q_3	5.100	4.818	0.606	0.436
Q_4	6.500	5.625	1.330	0.249
Anxiety	31.700	30.000	1.408	0.235
Extroversion	8.330	9.563	6.157	0.013**

* Approaching significance <.10 level

** Significant at <.05 level

TABLE 4

Comparison of S's Who Did Not Score

With S's Who Scored on Emotional Indicator V

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	No Score Group	Score Group		
A	5.068	4.250	1.414	0.234
B	4.765	3.300	2.741	0.098*
C	5.183	5.100	0.167	0.683
D	5.474	5.500	0.096	0.756
E	5.087	5.000	0.091	0.763
F	5.238	4.500	1.145	0.285
G	5.281	5.000	0.227	0.634
H	5.727	4.500	3.126	0.077*
I	5.196	5.250	0.083	0.774
J	5.089	5.500	0.786	0.375
N	5.043	5.500	0.090	0.764
O	5.361	6.833	2.855	0.091*
Q_3	4.947	5.000	0.110	0.740
Q_4	6.091	7.000	1.916	0.166
Anxiety	30.583	32.500	2.319	0.128
Extroversion	9.182	7.500	4.038	0.044**

* Approaching significance <.10 level

** Significant at <.05 level

TABLE 5

Comparison of S's Who Did Not Score

With S's Who Scored on Emotional Indicator VI

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	No Score Group	Score Group		
A	5.088	4.750	1.177	0.278
B	4.750	4.400	0.677	0.411
C	5.231	5.000	1.436	0.231
D	5.618	5.43	2.454	0.117
E	5.132	4.917	0.441	0.507
F	5.188	5.143	0.124	0.725
G	5.250	5.250	0.080	0.777
H	5.600	5.333	0.411	0.521
I	5.310	5.000	1.979	0.160
J	5.079	5.208	0.580	0.446
N	5.100	5.000	0.062	0.804
O	5.433	5.800	0.042	0.838
Q_3	4.889	5.333	0.010	0.921
Q_4	6.214	6.200	0.021	0.883
Anxiety	30.833	31.000	0.006	0.940
Extroversion	9.100	8.800	0.281	0.596

TABLE 6

Comparison of S's Who Did Not Score

With S's Who Scored on Emotional Indicator VIII

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	No Score Group	Score Group		
A	5.000	5.000	0.369	0.543
B	4.639	4.500	0.044	0.834
C	5.172	5.167	0.107	0.744
D	5.425	5.750	0.353	0.533
E	5.087	5.000	0.061	0.804
F	5.175	5.167	0.129	0.719
G	5.156	5.700	0.748	0.387
H	5.464	6.700	0.510	0.475
I	5.172	5.500	0.478	0.489
J	5.083	6.500	2.157	0.142
N	5.114	4.500	1.574	0.210
O	5.615	5.000	0.301	0.583
Q_3	4.972	4.833	0.005	0.944
Q_4	6.208	5.500	0.074	0.786
Anxiety	30.800	31.500	0.062	0.803
Extroversion	8.964	9.500	0.300	0.584

TABLE 7

Comparison of S's Who Did Not Score

With S's Who Scored on Emotional Indicator IX

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	No Score Group	Score Group		
A	5.050	4.667	1.768	0.184
B	4.688	4.250	0.479	0.489
C	5.125	5.750	1.530	0.216
D	5.300	6.000	4.524	0.033**
E	5.091	5.000	0.009	0.926
F	5.237	4.875	0.312	0.576
G	5.206	5.600	0.142	0.706
H	5.300	6.875	4.892	0.027**
I	5.179	5.375	0.542	0.461
J	5.067	5.875	1.214	0.271
N	5.065	5.000	0.325	0.568
O	5.583	5.400	0.031	0.861
Q_3	4.974	4.750	0.000	0.994
Q_4	6.227	6.000	0.001	0.976
Anxiety	30.700	32.000	0.023	0.881
Extroversion	8.857	9.875	0.886	0.347

** Significant at <.05 level

TABLE 8

Comparison of S's Who Did Not Score

With S's Who Scored on Emotional Indicator X

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	No Score Group	Score Group		
A	5.043	4.000	0.868	0.351
B	4.694	3.000	2.311	0.128
C	5.182	5.000	0.237	0.626
D	5.476	5.500	0.001	0.981
E	5.120	4.000	1.956	0.162
F	5.205	4.500	0.378	0.539
G	5.294	4.500	0.778	0.780
H	5.542	5.500	0.007	0.933
I	5.241	4.500	1.841	0.175
J	5.129	3.500	0.320	0.571
N	5.104	4.000	1.274	0.259
O	5.471	6.500	1.186	0.276
Q_3	4.905	6.500	2.669	0.102
Q_4	6.125	6.000	1.420	0.233
Anxiety	30.750	32.500	0.212	0.645
Extroversion	9.036	8.500	0.448	0.503

EI II. The reverse situation was found for EI V. Those who scored on EI V had median CPQ scores which were lower than those who did not score. These scores would place them toward the more introverted end of the continuum.

Koppitz (1964, p. 136) indicated that EI V is associated with acting out. Porter and Cattell (1963) indicated that children with higher scores on Extroversion vs. Introversion would be more likely to act out, and those with lower scores are more likely to have internal conflict. Although a significant relationship was found between EI V and CPQ Factor Extroversion vs. Introversion, it was the reverse of that which would have been predicted by a score on EI V. These results would not support Koppitz' original premise as to the implications of EI V.

A score on EI IX, Second Attempt, was found to be related to a higher score on CPQ Factor D, which would suggest that the S's would be slightly more unrestrained than those who did not score. EI IX was also related to a higher score on CPQ Factor H, with the results showing those who scored to be typically more "Thick Skinned" and adventurous and those who did not score to be more shy and sensitive. These results are consistent with

each other, in that those who are unrestrained would typically appear to be more adventurous. However, Porter and Cattell (1963) report a -.13 correlation between Factors D and H. These results are somewhat consistent with Koppitz' (1964, p. 140) description of those who score on EI IX being impulsive. An impulsive person would appear to be more unrestrained and adventurous than would a typical person. The other 108 comparisons of specific EI's with the CPQ personality factors did not yield other results which showed relationships significant at <.05 level. A summary of significant relationships is found in Table 9.

To determine whether the total number of EI's found on a protocol was related to one of the sixteen CPQ personality factors, additional comparisons were made. These comparisons sought trends as along the continuum of the CPQ factor scores related to an increasing number of total EI's. Only Factor Q_3 was found to be significantly and positively related to the total number of EI's. As the number of EI's increases, the CPQ Factor Q_3 scores increase, indicating a more self-controlled child. In the CPQ Manual, Porter and Cattell (1963) describe a child who scores high on Q_3 as socially acceptable and

TABLE 9

Summary of Significant Relationships Between Specific Emotional Indicators and Personality Factors

CPQ Factor	EI	X^2	Level of Significance
A	--	--	--
B	--	--	--
C	--	--	--
D	IX	4.524	0.033
E	--	--	--
F	--	--	--
G	--	--	--
H	IX	4.892	0.027
I	--	--	--
J	--	--	--
N	--	--	--
O	--	--	--
Q_3	--	--	--
Q_4	--	--	--
Anxiety	--	--	--
Extroversion	II/V	6.157/4.038	0.013/0.044

indicate that they are "considerate of others," "disposed to reduce and control expressions of emotion," and "conscientious." These results would, however, be the opposite of those which would have been predicted by Koppitz, in that she has indicated that with more than three EI's there is a good possibility of emotional disturbance. Those who score high on Factor Q_3 would tend to be the opposite of those with many EI's on their Bender Tests. One additional CPQ factor, E, approaches significance at <.10 level. As the number of EI's increases, CPQ Factor E median scores decrease, indicating that the child would be more submissive. Porter and Cattell (1963) report a -.29 correlation between Scales E and Q_3, indicating that these results are as expected. Those with a high score on Factor Q_3 would typically have a lower score on Factor E.

No other CPQ factor scores were significantly related to the total number of EI's. Table 10 outlines the results of the comparisons of total EI score with the 16 CPQ personality factor scores. A survey of these results shows that the median CPQ factor scores obtained by the S's at different levels of total EI score did not vary from the levels expected for the total population by more than 1 standard deviation. It

TABLE 10

Comparison of Total Emotional Indicator Scores By CPQ Factor

CPQ Factor	Median CPQ Factor Scores					X^2	Level of Significance
	0 EI's	1 EI	2 EI's	3 EI's	4 EI's		
A	5.000	5.000	5.056	5.000	4.000	0.780	0.941
B	4.667	4.786	4.667	3.500	3.500	2.329	0.675
C	5.000	5.167	5.300	5.300	4.500	3.074	0.545
D	5.400	5.071	5.773	5.167	6.000	4.325	0.364
E	5.625	5.000	5.000	5.500	4.000	8.114	0.087*
F	5.250	5.125	5.389	5.000	4.500	2.089	0.590
G	5.667	5.000	5.125	5.500	5.500	2.579	0.630
H	5.875	5.071	5.500	6.500	5.500	2.827	0.587
I	5.250	5.333	5.000	5.250	5.000	1.165	0.884
J	5.000	5.000	5.167	5.500	6.500	1.924	0.750
N	5.000	5.056	5.357	4.500	4.000	2.737	0.603
O	6.250	5.357	5.214	6.000	6.500	4.702	0.319
Q_3	4.750	5.300	4.500	4.000	7.000	11.886	0.018**
Q_4	6.571	6.333	5.700	6.833	6.000	1.639	0.802
Anxiety	31.000	29.833	31.000	33.500	31.000	2.088	0.720
Extroversion	8.333	8.700	9.250	9.833	8.500	2.114	0.715

* Approaching significance <.10 level

** Significant at <.05 level

is particularly noteworthy that on the Anxiety vs. Adjustment factor the median score of those who had no EI's was the same as those who had 4 EI's--31.000. Koppitz (1964) indicated that children with 3 or more EI's were likely to have significant behavioral disorders or would require further evaluation. Table 11 contains a distribution of the S's by total number of EI's obtained.

Finally, comparisons were made to determine whether S's having various total numbers of EI's differed by CPQ factor score from those who had fewer EI's. Four sets of comparisons were performed. Those who had 1, 2, 3, or 4 EI's were compared with those who had 0 EI's; 2, 3, or 4 EI's compared with 0 or 1 EI's; 3 or 4 EI's compared with 0, 1, or 2 EI's; and 4 EI's compared with 0, 1, 2, or 3 EI's. Tables 12 through 15 contain the results of these comparisons. Significance was determined in only 2 of the 64 comparisons made. These particular comparisons showed those whose Bender Gestalt Test results contained 4 EI's differed significantly from those whose protocols contained 0, 1, 2, or 3 EI's on CPQ Factors E and Q_3. (See Table 15.) These same two scales were reported

TABLE 11

Distribution of Total EI's

Total Number of EI's	Number of S's
0	13
1	26
2	22
3	10
4	4

TABLE 12

Comparison of S's Having 0 Emotional Indicators

With S's Having 1, 2, 3, or 4 Emotional Indicators

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	0 EI's	1, 2, 3, or 4 EI's		
A	5.000	5.000	0.053	0.818
B	4.667	4.633	0.153	0.696
C	5.000	5.214	1.662	0.197
D	5.400	5.500	0.092	0.761
E	5.625	4.976	1.901	0.168
F	5.250	5.176	0.056	0.813
G	5.667	5.167	1.120	0.290
H	5.875	5.429	0.020	0.887
I	5.250	5.192	0.118	0.731
J	5.000	5.182	0.284	0.594
N	5.000	5.088	0.030	0.863
O	6.250	5.438	1.634	0.201
Q_3	4.750	4.974	0.018	0.892
Q_4	6.571	6.167	0.573	0.449
Anxiety	31.000	30.900	0.234	0.628
Extroversion	8.333	9.071	0.298	0.585

TABLE 13

Comparison of S's Having 0 or 1 Emotional Indicator With S's Having 2, 3, or 4 Emotional Indicators

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	0 or 1 EI	2, 3, or 4 EI's		
A	5.000	5.000	0.107	0.744
B	4.750	4.500	0.475	0.491
C	5.105	5.250	0.261	0.609
D	5.208	5.700	1.920	0.166
E	5.179	4.955	0.382	0.537
F	5.150	5.192	0.395	0.530
G	5.286	5.227	0.007	0.935
H	5.313	5.833	1.057	0.304
I	5.306	5.071	0.768	0.381
J	5.000	5.333	0.698	0.403
N	5.031	5.125	0.006	0.939
O	5.600	5.500	0.552	0.458
Q_3	5.208	4.619	3.315	0.069
Q_4	6.417	6.000	0.018	0.892
Anxiety	30.125	31.500	0.742	0.389
Extroversion	8.583	9.278	1.121	0.290

TABLE 14

Comparison of S's Having 0, 1, or 2 Emotional Indicators With S's Having 3 or 4 Emotional Indicators

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	0, 1, or 2 EI's	3 or 4 EI's		
A	5.025	4.8833	0.547	0.459
B	4.719	3.500	1.702	0.192
C	5.172	5.176	0.041	0.840
D	5.472	5.500	0.123	0.726
E	5.114	4.833	0.118	0.731
F	5.263	4.750	0.502	0.479
G	5.200	5.500	0.082	0.774
H	5.385	6.167	1.129	0.288
I	5.229	5.125	0.066	0.798
J	5.054	5.833	1.560	0.212
N	5.130	4.333	1.658	0.198
O	5.406	6.167	1.043	0.307
Q_3	4.972	4.833	0.001	0.972
Q_4	6.091	6.750	0.765	0.382
Anxiety	30.583	33.500	0.749	0.387
Extroversion	8.964	9.500	0.001	0.093*

* Approaching significance <.10 level

TABLE 15

Comparison of S's Having 0, 1, 2, or 3 Emotional Indicators With S's Having 4 Emotional Indicators

CPQ Factor	Median CPQ Factor Score		X^2	Level of Significance
	0, 1, 2, or 3 EI's	4 EI's		
A	5.023	4.000	0.600	0.439
B	4.647	3.500	0.624	0.429
C	5.191	4.500	1.048	0.306
D	5.429	6.000	1.282	0.257
E	5.160	4.000	5.452	0.020**
F	5.238	4.500	1.510	0.219
G	5.219	5.500	1.139	0.286
H	5.542	5.500	0.097	0.756
I	5.232	5.000	0.411	0.521
J	5.097	6.500	1.146	0.284
N	5.104	4.000	1.718	0.190
O	5.471	6.500	1.186	0.276
Q_3	4.875	7.000	5.209	0.022**
Q_4	6.280	6.000	0.009	0.923
Anxiety	30.917	31.000	0.005	0.943
Extroversion	9.036	8.500	0.448	0.503

** Significant at <.05 level

above as being related with total number of EI's. In that there are no trends on the other comparisons of Scales E and Q_3 and considering the small number of S's who obtained 4 EI's, N of 4, these results would appear to be suspect. The results would also appear to reduce the significance attributed to total number of EI's and score on Factor Q_3 reported above. A closer look at the trend in scores on Factor Q_3 in Table 11 shows that median CPQ scores tend to become smaller as total number of EI's increases to a total of 3. The significance attributed to the total number of EI's and its relationship with CPQ Factor Q_3 appears to have been distorted by the high median score of those S's who had 4 EI's.

A more subtle trend in the obtained data was found and is concerned with CPQ Factor B, Dull vs. Bright. In 5 of the 7 comparisons of those who scored on the various EI's with those who did not score, those who did score a Koppitz EI had a lower score on CPQ Factor B than did the group who did not have the EI. This would indicate that S's with these specific EI's were somewhat duller than those who did demonstrate EI's. In addition, in those cases where S's with different numbers of EI's were compared with those S's who had fewer EI's, those

with more EI's had lower CPQ Factor B scores. This was true in all four comparisons and would seem to indicate that there is an inverse relationship between the total number of EI's and intelligence.

CHAPTER 5

Discussion

Of the 192 statistical comparisons of the 14 primary and 2 secondary factors of personality measured by the CPQ with the Koppitz Emotional Indicators, significant relationships were found in only seven instances. At certain points the data are consistent with the anticipated results as indicated by Koppitz and others who have researched the EI's. In other cases the results were the opposite of what would have been anticipated. The presence of EI's II and V were significantly related with the CPQ secondary factor of Introversion vs. Extroversion. Previous results have indicated that the presence of EI II could discriminate between psychiatric and non-psychiatric groups. Typically, psychiatric populations would be more withdrawn. The scores obtained within this study indicated that those who exhibited EI II would tend to be more extroverted and outgoing. A similar but reverse situation was found for EI V. Koppitz has contended that the presence of EI V is more frequently found in children who act out. The comparisons with the CPQ would indicate that children would be more

introverted or withdrawn. These present results would question the ability of Koppitz EI's II and V to predict certain emotional qualities in children.

Only EI IX, Second Attempt, was found to be significantly related to personality factors of the CPQ in the directions which would have been predicted by Koppitz. It has been previously shown by Handler and McIntosh (1971) that the presence of EI IX is significantly more evident in the Bender Gestalt Test protocols of aggressive children. The present results find that the presence of EI IX is positively related with CPQ Factors D and H. This would indicate that these children are more unrestrained, Factor D, and more adventurous, Factor H. It is interesting to note that no relationship was found between EI IX and CPQ Factor E, Mild vs. Aggressive. This is even more unusual when considered that Porter and Cattell (1963) offer positive correlations between both Factors D and H with Factor E. It is possible that what was thought to be aggressive behavior on the part of those manifesting EI IX is more the result of lack of restraint, excitability, impulsivity and high level of activity rather than aggression.

Koppitz' premise that the presence of three or more emotional indicators on a Bender Test protocol

would be suggestive of emotional disturbance was also not supported. In fact, the results indicated that children with more EI's would tend to be considerate of others and control emotions rather than being emotionally disturbed and have behavior problems. These results would indicate that little value can be attributed to the total number of EI's present and a "cutting score" of 3 EI's is not valid for the prediction of emotionality.

Finally, in 7 of the 11 comparisons of specific EI's and group combinations of EI's, those with EI's present scored lower on the dull vs. bright scale of the CPQ. These results would suggest that the Koppitz EI's are more an extension of the Developmental Indicators rather than a measure or predictor of emotionality on behavior pathology in children. It is possible that those who are less bright more frequently make the errors in reproducing the Bender Gestalt Test figures which have been called the Emotional Indicators. Also being less bright, these children have more difficulty in adapting their behaviors properly to their social family and learning environments. They may have more difficulty in meeting the expectations of others, such as parents and teachers, and are, therefore, thought of as having emotional or behavior problems.

In general, the results of this study would indicate that neither the presence of a particular Koppitz Emotional Indicator nor the total number of Emotional Indicators present can discriminate between various factors of personality. Therefore, they would be of limited value as a diagnostic tool or a predictor of behavior or emotional pathology in children.

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